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ABSTRACT

The study skills program described in this guide was prepared for use by all content area teachers in order to develop mature, efficient readers in the junior high school. The various sections of the guide present (1) a comprehensive list of study skills that overlap both reading and library skills: (2) guidelines related to the student's study environment, study schedule, and organization of notes: (3) guidelines and strategies for developing listening skills: (4) various formats for outlining and organizing information in any of the content areas: (5) note taking techniques to use in the classroom or with a textbook: (6) procedures for survey reading of a general text, fiction, a newspaper, and, more specifically, social studies texts: (7) the Preview, Question, Read, Recite, Reflect, Review (PQ4R) study method and its application to a science reading assignment: (8) methods for introducing and teaching vocabulary in the content areas: and (9) test taking techniques. (AEA)

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DARIEN PUBLIC SCHOOLS

Darien, Connecticut

# JUNIOR HIGH SCHOOL STUDY SKILLS PROGRAM

First Draft

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October 1980

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I

## Introduction

Research indicates that students' progress in particular reading/study skills is most rapid and reaches maturity at different times in the reading continuum from primary grades to high school. The ability to understand, critically interpret, and organize content material in junior high and high school classes requires a mastery of study skills not evidenced in elementary students. Students enter junior high school able to read but not necessarily knowing how to study. While many junior high teachers incorporate study skills into their teaching, they often do not explicitly teach them or provide students with enough practice in using the skills to master them.

To develop mature, efficient readers in the junior high school, we need a comprehensive, flexible program which recognizes that the development of study skills is continuous and that the person best qualified to develop these skills is the content area teacher. The content area teacher is the one who is

1. most capable of teaching new vocabulary in the particular content area,
2. most knowledgeable in setting purposes for reading,
3. most able to develop and motivate student interest,
4. most adept in identifying concepts to be arrived at,
5. most knowledgeable about sources, their use and value in developing background experiences,
6. most familiar with the text to know best how it shall be read and studied.

6:17 *

For these reasons, the study skills program outlined on the following pages was prepared. Its goal is to help teachers teach study skills more effectively and, thus, make students more efficient learners. The Committee (Coleman Alexa, Rose Marie DePaul, Howard Fenn, Barbara Fitzpatrick, Robert Joy, Robert Seymour, and John Sutton) feels strongly that study skills are best taught as an integral part of all content-area courses. Students must not only

*Refers to Bibliography entry number 6, page 17.

be taught subject matter but also how to learn it. This is especially true at the junior high school level. The Committee recognizes that it takes extra time to teach study skills, time which, because of the demands of the curriculum, is already tight. We feel, however, that time spent on study skills will pay dividends in increased student learning. While it may at first slow down coverage of the curriculum, eventually, as students' skills develop, the teacher should be able to progress more rapidly.

The Committee also wishes to emphasize that students need to practice study skills over and over again if these skills are to become habits. This study skills program will stand a much better chance of success (success = students' application of the skills) if all the teachers in the school participate in it. By walking through each procedure with the students and then having them practice it repeatedly throughout the year, the study skills will become ingrained.

Study skills cover a wide range. They overlap both reading and library skills. On page 3 will be found a comprehensive list of study skills the Committee feels should be incorporated into our curriculum. However, since it would be impossible to produce a concise, usable teaching guide encompassing all these skills, the Committee has provided a teaching guide and suggestions for teacher and students on selected skills. In addition, the Harvard/Milton Study Skills Program will be used as a supplementary source.

We have labeled this guide "First Draft." It is by no means finished. We hope that as teachers use it they will tell us about its strengths and weaknesses so that we can continue to improve it. We also stand ready to help you in any way we can. Howard Fenn and Bob Joy, our reading experts, are especially well equipped to assist you.

# JUNIOR HIGH SCHOOL STUDY SKILLS

## Comprehension

1. Identifying and recalling factual details
2. Inferring relationships among details
3. Extending ideas and concepts beyond the material read

## Vocabulary

1. Knowledge of technical vocabulary
2. Using context to define new words
3. Using word analysis (syllables, prefix, suffix, root/base)

## Critical Reading and Thinking

1. Using logic
2. Recognizing the author's purpose
3. Distinguishing between fact and opinion
4. Recognizing propaganda and bias

## Information Organizing Skills

1. Outlining (Central Theme, Main Points, Details)
2. Class note taking
3. Reference note taking
4. Summarizing
5. Using PQ4R study method (Preview, Question, Read, Recite, Reflect, Review)

## Purpose of Reading

1. Reading for a specific purpose
2. Adjusting rate of reading according to purpose

## Graphic Material

1. Understanding pictures
2. Understanding maps
3. Understanding graphs and tables
4. Understanding diagrams

## Book Parts

1. Locating and/or understanding and/or using organization of particular text
2. Title page, copyright date, table of contents, introduction, preface
3. Chapter summaries, study aids, glossary
4. Footnotes, bibliography, appendix, index

Listening

1. Importance of listening
2. Techniques of good listening

Test Taking Techniques

1. General techniques
2. Objective Test
3. Essay Test
4. Standardized reading test
5. Content area tests

General Work/Study Habits

1. Study environment
2. Study schedule
3. Organization of notes

## GENERAL WORK/STUDY HABITS

Many students have little or no concept of basic work/study habits which can help them be more efficient learners. They tend to study at haphazard times and in places that distract from rather than facilitate learning. The following guidelines related to the study environment, study schedule, and organization of notes may be given to and discussed with students.

When students learn to organize their study time they may become more proficient learners who

recognize what has to be done,

plan to do it,

take responsibility for getting it done.

## GENERAL WORK/STUDY HABITS

### Study Environment

1. Choose a place to study that is quiet and free of distractions.
2. The study area should be comfortable and properly lighted.
3. The desk/table should be equipped with paper, pen/pencil, dictionary, and texts.
4. A clock (or a watch) should be nearby.
5. Mix periods of studying (25-45 min.) with short breaks (5-15 min.).

### Study Schedule

1. Organize a balanced schedule of your day to plan your studying time. Include: wake-up, when go to sleep, meals, school, obligations (job, lessons, practices), study time--time when most alert and sufficient to complete work well. Pace yourself.

| | ACTIVITY |
|---|---|
| 6:00 a.m. | |
| 7:00 | |
| 8:00 | |
| 9:00 | |
| 10:00 | |
| 11:00 | |
| 12:00 | |
| 1:00 p.m. | |
| 2:00 | |
| 3:00 | |
| 4:00 | |
| 5:00 | |
| 6:00 | |
| 7:00 | |
| 8:00 | |
| 9:00 | |
| 10:00 | |
| 11:00 | |

2. Try to have a definite time for studying and start working at that same time daily to create a studying habit.
3. Ask yourself what you want to accomplish in <u>this</u> study session before you start to study.

4. Plan to do your hardest work first when you are the most alert.

5. Concentrate!

6. If you have no specific assignment due the next day, work on long-term projects, review your work and new vocabulary words, or read.

7. Budget your time for long-range projects.

Notebook

1. Have a spiral notebook per class or a spiral notebook with five or six sections.

2. Have a folder with pockets for each class to hold class material.

3. Keep daily assignments and notes in your spiral notebooks.

4. Record the date of each class in the upper right hand corner of each notebook page.

5. Take notes on one side of the page only leaving the opposite side for additions, your thoughts or comments.

6. Make your notes clear, complete, and legible.

7. Review notes as a part of your homework.

8. Teachers will have a weekly notebook check for content and organization.

9. Keep your notebook neat and well organized so that you can find things when you need them and so that it will always be ready when your teacher asks to check it.

Classroom

Students will be expected to come to class prepared with:

a) pen/pencil
b) notebook and folder
c) text

## LISTENING

Students spend approximately sixty to seventy percent of their classroom time engaged in listening, a communication skill that is used the most but, unfortunately, taught the least. The chart below indicates the order in which listening, speaking, reading, and writing are learned, the degree to which they are used and the extent to which they are taught.

| | Listening | Speaking | Reading | Writing |
|---|---|---|---|---|
| Learned | 1st | 2nd | 3rd | 4th |
| Used | most 45% | next most 30% | next least 16% | least 9% |
| Taught | least | next least | next most | most |

7:4

In order to communicate effectively with students we must be sure they are listening. It is not enough to tell students to listen, they must be made aware of what it means to be an effective listener. The following chart lists ten effective listening guidelines that the content area teacher can review with the students. Hopefully, the students will realize that listening is an active process and that both speaker and listener are responsible for successful communication.

### 10 Keys to Effective Listening

These keys are a positive guideline to better listening. In fact, they're at the heart of developing better listening habits that could last a lifetime.

| 10 Keys to Effective Listening | The Bad Listener | The Good Listener |
|---|---|---|
| 1. Find areas of interest | Tunes out dry subjects | Opportunitizes; asks "what's in it for me?" |
| 2. Judge content, not delivery | Tunes out if delivery is poor | Judges content, skips over delivery errors |
| 3. Hold your fire | Tends to enter into argument | Doesn't judge until comprehension complete |
| 4. Listen for ideas | Listens for facts | Listens for central themes |

| | | | |
|---|---|---|---|
| 5. | Be flexible | Takes intensive notes using only one system | Takes fewer notes. Uses 4-5 different systems, depending on speaker |
| 6. | Work at listening | Shows no energy output. Attention is faked | Works hard, exhibits active body state |
| 7. | Resist distractions | Distracted easily | Fights or avoids distractions, tolerates bad habits, knows how to concentrate |
| 8. | Exercise your mind | Resists difficult expository material; seeks light, recreational material | Uses heavier material as exercise for the mind |
| 9. | Keep your mind open | Reacts to emotional words | Interprets color words; does not get hung up on them |
| 10. | Capitalize on fact <u>thought</u> is faster than <u>speech</u> | Tends to daydream with slow speakers | Challenges, anticipates, mentally summarizes, weighs the evidence, listens between the lines to tone of voice |

7:9

Research indicates that students' listening can be improved significantly when teachers instruct students in specific listening skills. The following guidelines and strategies have been devised to help teachers to teach these skills.

1. <u>Prepare students for the talk</u>

   The teacher will discuss with the students
   - what the lecture is to be about
   - the purpose of the lecture
   - topics, sub topics
   - new vocabulary and its meaning
   - difficult concepts
   - questions that will be answered in the lecture

2. <u>Give students something to anticipate</u>

   The teacher may ask students to
   - list five questions they would like to have answered in the lecture
   - relate the particular lecture to preceding discussions
   - relate the lecture to what they know of life in general

3. Personalize

The teacher should use
- personal pronouns
- anecdotes, illustrations, and examples from the teacher's and students' lives

4. Have students listen with pen/pencil in hand

The teacher may
- give students five or ten questions to be answered during the talk
- have students answer student created questions developed in the pre-lecture period
- give students a rough outline of the lecture with lines left blank for supporting details and later main ideas have students write down ideas that were "New to Me."

5. Share an outline with students

The teacher may give students
- the whole outline of the lecture in duplicated form to follow as they listen
- the outline with a few details missing which students have to fill
- the outline with main headings for which the students supply the details
- an outline with blank lines on which students have to fill in the major headings and details

6. Visual aids

The teacher may present
- pictures
- graphs and tables
- diagrams and charts

7. Allow students opportunities to respond at the end of the talk

The teacher should allow time for students to
- discuss answers to the questions posed by the students and teacher in the pre-lecture period
- review the new vocabulary and concepts introduced in the lecture
- discuss their written responses in relation to the outlines and "new" ideas

8. Give students a study guide for the talk

Strategies one through seven can be organized into a study guide that is prepared by the teacher before the lecture and given to the students. A study guide could possibly include the following:

- a preview of the lecture (purpose and general plan)
- a list of new words, ideas and concepts used in the lecture
  questions for students to think about as they listen
- space for the students to write questions they want
  answered as they listen
- questions related to the listener personally, i.e. In what
  ways does this affect your life?
- space for the students to respond in writing, i.e. completing
  an outline
- visuals that may be duplicated in the guide
  follow-up activities, i.e. related writing activities or
  related reading

3:106-112

V

## OUTLINING

The student's ability to ascertain main idea(s) as well as supporting details is a major outcome of any form of assigned or independent reading in the content areas. The student is, also, continually involved with note taking, writing reports, and outlining text book chapters which require the use of these skills. However, research indicates that junior high school students have considerable difficulty identifying main ideas when using a variety of expository materials. This is a complex skill that should receive major emphasis in the content areas. In addition, students should be made aware that, particularly in social studies and science, there are certain organizational patterns that may help them organize their reading assignments. The patterns that students should be taught are cause and effect, comparison and contrast, and time order. The students can then

1. organize the material in relation to a cause(s) and its effect(s);
2. list the comparisons as well as the contrasts in relation to a particular topic;
3. chronologically organize the information, possibly in a time line.

The following section describes various formats for organizing information in any of the content areas.

### Definition of Terms

#### Topic

Subject of the discourse (word or phrase)

#### Main Idea (Main Point)

1. The main idea is the most important statement about the topic. (complete statement)

2. The main idea may appear anywhere in a paragraph or may be implied.

3. Topic sentences may connect one paragraph to another. When you come to a paragraph which changes the subject you can expect a new main idea to be introduced. Bold faced headings are a key to these changes.

Details

1. Details support the main idea.

2. Most reading material consists of details.

3. The degree to which specific details must be recalled will be determined by the students' purpose and the demands of the subject.

Central Theme (Not always included in outline)

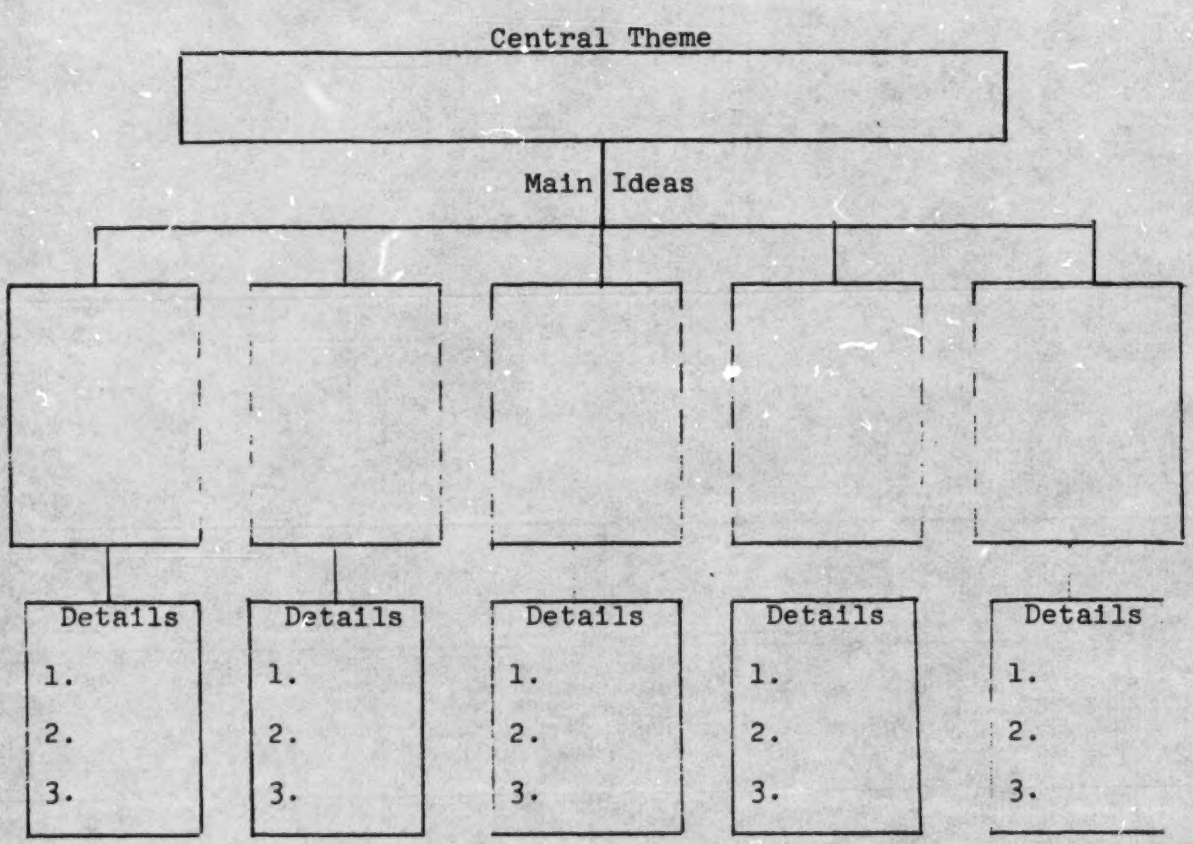
The Central Theme will not be stated directly by the author, but it is a composite of the essential elements in the main idea(s).

## Outline Formats

The following are various formats that may serve as an outline for topic, main idea, details, and if necessary, central theme.

1. Block Format

Topic _____




From: Baldridge Study Guide

2. Outline Format

Topic _____

Central Theme _____

I. Main Idea

A. detail
B. detail
C. detail

II. Main Idea

A. detail

3. Outline Format

Topic _____

Central Theme _____

I. Main Idea

A. Subtopic

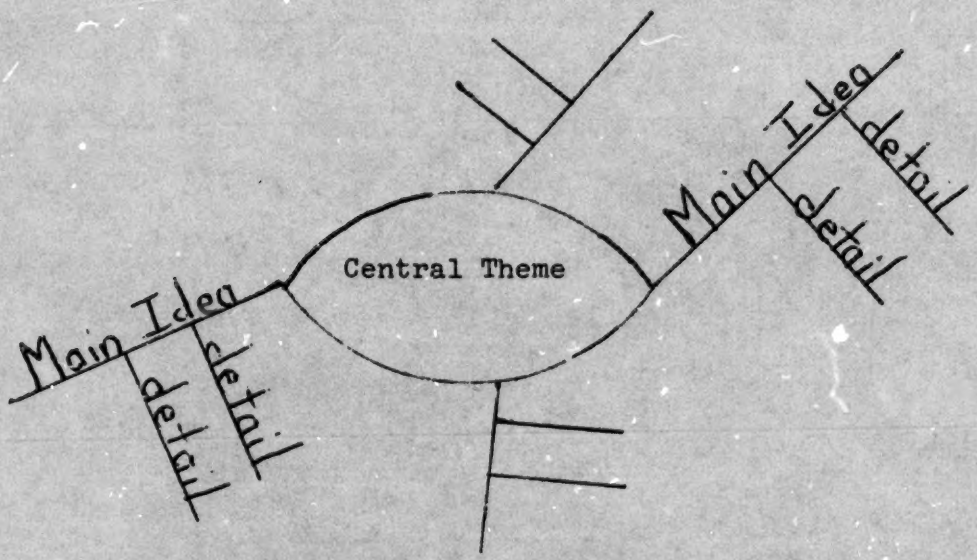
1. detail
2. detail

B. Subtopic

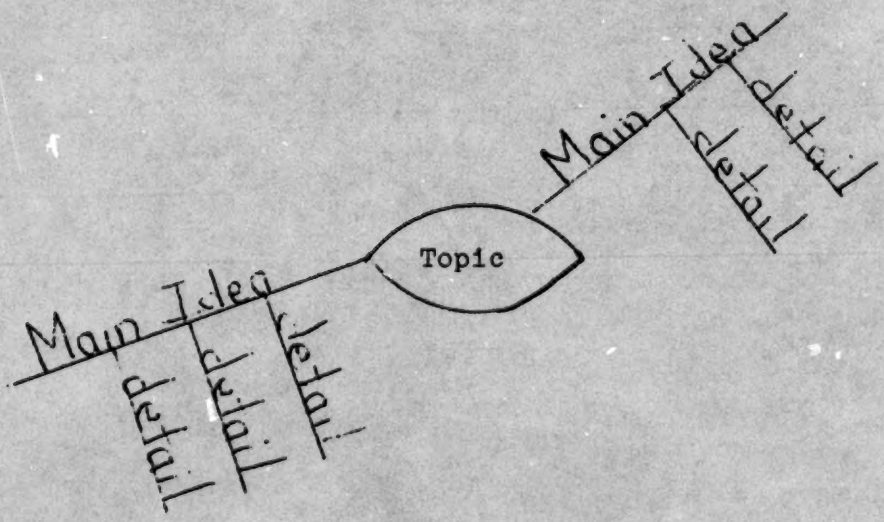
1. detail
2. detail

4. Map Format

Topic _____




5. Map Format

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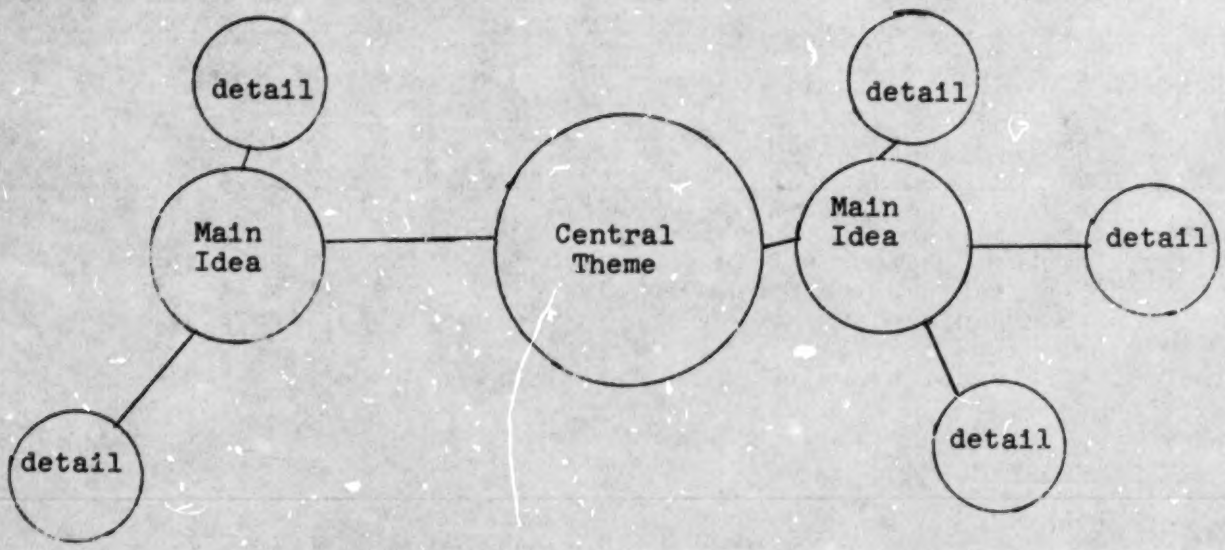
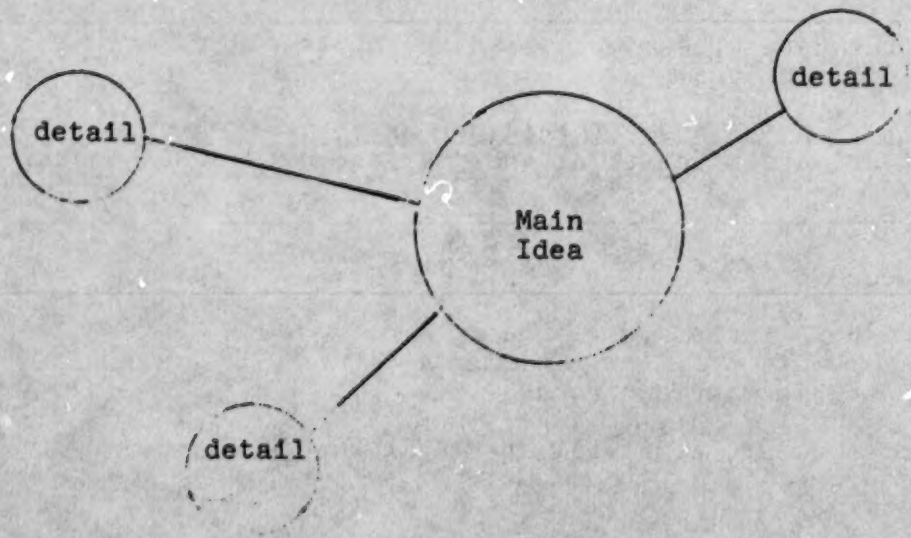
6. Radial Outline




7. Radial Outline



VI

# NOTE TAKING TECHNIQUES

Note taking is a very valuable skill. A student who can take accurate and meaningful notes will find school work easier and more enjoyable. However, students must be trained in the functional skills necessary for good note taking whether it be notes from class, a lecture, text, or reference material. The students must be taught to listen or read effectively, decide what to write down, and then to organize the information into a particular format.

The following section describes note taking techniques for the class or text.

## Class Note Taking

### Organization

1. Use a spiral notebook or a spiral notebook with sections for each subject.
2. Record the name of the course and the date on the tab, book cover or first sheet of each subject.
3. Record the date of each class in the upper right hand corner of each page.
4. Take notes on one side of the page only, leaving the opposite side for additions and your thoughts or comments.

### Writing

1. Do not doodle.
2. Develop abbreviations.
3. Write notes in your own words.
4. Make notes clear, complete, and legible.

### Format of Notes

1. Write in outline form (See Chapter V)
2. Write main points.
3. Use indentations and numbers or letters for subordinate ideas.
4. Do not write in complete sentences.

Student Input

1. Be a good listener.

2. Re-read your notes. Recall what you meant each note to mean. This review seems to 'set' the notes in your mind, making them easier to interpret later.

Text Note Taking

1. Don't try to write down everything. Rephrase the content when possible.

2. Read the entire selection or chapter before you take notes.

3. Make an outline of main points and details. (see Chapter V on Outlining)

4. Use abbreviations.

5. Leave space in your notes for 'fill in' notes from class or other sources.

6. Use divided notebook page for Q and R steps of PQ4R. (see Chapter VIII on PQ4R)

   a. Q Step-Write the question on left one-half side of page.
   b. R Step-Write the answer to question on right half side.

7. Make notes clear and organized.

8. Re-read your notes.

9. When working on a research paper keep a record of all your sources. Make these references and bibliography part of your notes.

VII

## SURVEY READING

Today's texts have excellent aids for reading and study. However, unless the teacher gives the student specific instructions related to an over view of a particular text and its study aids, students may not make good use of such aids.

Previewing or surveying the various parts of a text with the student is an excellent way to introduce a text and provide an over view of the course. (Sample student worksheets are provided for this purpose.)

The following section indicates the procedure for surveying a general text, fiction, newspaper, and more specifically, social studies texts.

## GENERAL SURVEY READING

1. Textbook Survey Procedure

   a. Title - How does it differ from others on the same subject?
   b. Author - Who is he/she? What is his/her background?
   c. Copyright date - Is the book up to date?
   d. Preface, Foreward and Introduction - Why was the book written?
   e. Table of Contents for chapter organization - How is the book organized? Are there summaries at end of the chapter?
   f. Illustrations or other graphic material
   g. Summaries and conclusions
   h. Summary chapter - usually states contents of book
   i. Appendices, Glossaries, Index and Bibliography - Which ones are included?
   j. Review questions - Are these at end of each chapter?
   k. Author's style - Is it complex, narrative, etc.?

2. Chapter Survey Procedure

   a. Title - How does it relate to preceding and following chapters?
   b. Introductory paragraphs - check for central theme
   c. Subtitles and boldface print - Can they be grouped into main points or placed in chronological order?
   d. Illustrations, maps, pictures and diagrams - Do they clarify the central theme?
   e. Summary paragraphs - Usually contain the main points
   f. Review questions

3. Fiction Survey Procedure

   a. Title and Author - Are they familiar or popular?
   b. Read information on jacket covers
   c. After reading first chapter, reread first page
   d. After reading novel, reread first chapter to gain fresh perspective

4. Newspaper Survey Procedure

   a. Front page - Read headlines, look at Table of Contents, and glance over sub-headlines
   b. Skim over boldface print throughout newspaper
   c. Sometimes read first sentence or first paragraph of articles
   d. Keep moving; do not get sidetracked on details
   e. Activity-Survey newspaper for two minutes; find articles on the following news areas: local, national, international; students will be asked to discuss articles in each category.

STUDENT WORKSHEET

I. Textbook_____ Chapter_____

II. Organization of Chapter_____

_____

_____

III. Study Aids_____

_____

IV. General Question_____

V. Survey to find key or subtitles of chapter and then turn into questions.

| | Key Words | Questions |
|---|---|---|
| 1. | _____ | _____ |
| 2. | _____ | _____ |
| 3. | _____ | _____ |
| 4. | _____ | _____ |

VI. The main topic or emphasis of the questions_____

VII. Try to answer the questions without reading the chapter.

1. _____
2. _____
3. _____
4. _____

VIII. Survey each section to check your answers. If they are not correct, write the correct answers.

1. _____
2. _____
3. _____
4. _____

2:20

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STUDENT WORKSHEET

| Question | Answer | Location in book |
|---|---|---|
| 1. What is the book about? | | |
| 2. Who wrote the book? | | |
| 3. Where was the book written? | | |
| 4. When was the book first published? | | |
| 5. Who was the book written for? (What type of reader?) | | |
| 6. How is the book organized? | | |

7. What study aids are provided?

_____

_____

8. List the names of the main sections.

_____

_____

_____

9. Write some questions relating two or more sections.

a. _____

b. _____

c. _____

d. _____

10. What are some main questions to answer about this book?

a. _____

b. _____

c. _____

d. _____

2:22

## HOW TO USE YOUR SOCIAL STUDIES TEXT

Organization by units and chapters

Table of Contents

| | |
|---|---|
| Illustrations | Showing scenes or suggesting ideas. Cast of characters - how they looked, dressed, etc. |
| Chapter beginnings | Introduction<br>Guide question listing important ideas<br>Sections of chapter - column headings<br>paragraph headings |
| When and Where | Time sense and important dates |
| Understanding and Remembering | "Check-up" questions in sections<br>Chapter Check-up<br>(1) Do you know the meaning? (Words and vocabulary)<br>(2) Can you identify? (Names, dates, terms)<br>(3) Can you locate (lists of locations to find on map/maps)<br>(4) What do you think? Questions to think about and to apply to what you have read.<br>(5) Linking the Past and Present - Examples of the many ways in which the past affects our lives today. |
| The Unit as a Whole | 1. Summary of important ideas<br>2. Unit review to help think through ideas<br>3. Gaining skills - develop skills that will enable you to use Social Studies materials more effectively. (Source materials, references, etc.)<br>4. Interesting things to do involving ways of using what you have learned.<br>5. Unit Test to check understanding of major ideas developed in Unit. |

# HOW TO USE YOUR SOCIAL STUDIES TEXT

I. How to use the text - This Is America's Story.

1. Organized into units and chapters.
2. Table of Contents.
3. Each title deals with a major development.
4. Units begin with introduction.

II. Help to get the most out of reading a chapter.

1. Each chapter begins with an introductory section.
2. What this chapter is about?
3. Guide question lists important ideas.
4. Chapter divided into sections -- titles correspond to guide questions.
5. Two other types of headings: column headings to indicate general topics and paragraph headings.

III. To find out when and where.

1. Only by knowing the when and where of different happenings will you know the full story.
2. How to build a time sense -- in reference section at the end of text contains a list of important dates.

IV. To help you understand and remember.

1. Study helps which appear regularly so that you will not miss important points of the story.
2. To understand better, stop and recall what you have read and ask yourself what it means.
3. Use the question on Check Up to test your grasp.
4. Use the various exercises under Chapter Check Up.

   a. Do you know meaning?
   b. Can you identify?
   c. Can you locate?
   d. What do you think?

V. To help you think about the unit as a whole.

1. Understanding the unit.

   a. Summary of important ideas brings together the important ideas stressed.
   b. Unit review provides questions which will help you think through ideas.
   c. Gaining skills--units and sections will help you develop skills that will enable you to use Social Studies materials more effectively.
   d. Interesting things to do--suggests ways of using what you have learned.
   e. Unit test provides an easy way to check your understanding of major ideas developed.

VI. Source materials.

1. The past comes alive when you follow history at its sources, the actual words of famous peoples and primary reports of others.

VII. Easy reference.

1. Index.
2. List of reference books and interesting books to make history interesting.
3. Charts and Maps.

# HOW TO USE YOUR GEOGRAPHY TEXT

Land and People: A World Geography, is organized so that you will find it easy to use.

Organization - Units (9) and Chapters (30)
Table of Contents
Map lists
Index
Glossary

Chapters
Number and title
Brief introduction
List of major sections or subtitles
Section headings
Subsection headings
Check-up - factual information and opinion questions
Special features - By the Way - Take a Break,
Traveling - Careers.

End of Chapter Materials - Review - understanding and remembering
Key terms - vocabulary and meaning
Main Ideas - geographic knowledge
Map exercise- geographic skills
Suggestions for projects
Suggestions for further readings
Place location exercise.

Map Lessons and Maps - Keys to map reading skills

Chapter Review - Key Terms
Main Ideas
Working with maps
Thinking Critically
Skill Activities
Feature interest sketches
Further Reading
Chapter Quiz/Unit test

VIII

## PQ4R

PQ4R (Preview, Question, Read, Recite, Reflect, Review) is a variation of the SQ3R study method and is an efficient approach by the student to textbook study. It is applicable to reading informational chapters in science, social studies, health, economics, etc. It is a technique that is effective in improving the reading of chapter-length materials when the student's purpose is a thorough understanding of the content. PQ4R will help the student comprehend, concentrate, and retain information.

Specific Advantages of PQ4R are:

1. Using this method can help the student become an active reader, one who reads to find answers to questions.
2. Using the PQ4R method can help the student learn more and remember more when he/she reads.
3. This method will give the student some brief but very useful notes for each reading assignment. The student can use these notes to study for tests.
4. Although it will probably take the student more time to use the PQ4R method at first, he/she will find that eventually it will become efficient and effective.

It is essential that the student internalize this study technique. If the study process is not internalized, it will not become a habit for the student. Practice under supervision over the weeks and months that follow its introduction is essential.

The following section describes the PQ4R study method and its application to a science reading assignment.

## STEPS of the PQ4R STUDY METHOD

1. P - Preview - three to five minutes
   a. Examine title of chapter.
   b. Read introductory paragraphs.
   c. Read each subtitle and boldfaced print.
   d. Read concluding paragraphs or summary.

2. Q - Question
   a. Turn the first boldface heading into a question using the words "how" and/or "why".
      When boldface headings are not available - topic sentences may be turned into questions.
   b. Continue questioning procedure throughout chapter.
   c. Write out each question.

3. R - Read
   a. Read section to answer your question.
   b. The answer will be stated within the section.

4. R - Reflect
   a. Consider outside information.
   b. Draw conclusions.
   c. Think - then write the answer <u>in your own words</u>.

5. R - Recite
   a. Cover answers.
   b. Read questions and attempt to recite the answers.
   c. Practice writing the answers.
      1. Answers will be main ideas.
      2. Add details under main ideas.

6. R - Review
   a. Check each answer.
   b. For incorrect answers - Review section in textbook.

How to Study a Reading Assignment in Science

(8th grade Focus on Physical Science used as the example)

Step one: Get an overview of the subject. Sometimes this can be done merely by reading the title of the text. However, in many science courses the book title is too general to give much information about what is to be studied. (Example: Focus on Physical Science. At least you know it isn't a biology course). When this is the case, then you must go to step two.

Step two: Read through the table of contents. This will give specifics, for not only are unit and chapter headings given but also information pertaining to the material to be found in each chapter. (Example: "Unit Two - Properties of Matter; Chapter 1 - Classification of Matter)

| | | |
|---|---|---|
| 1:1 Matter | 1:3 Compounds | 1:5 Physical Changes |
| 1:2 Elements | 1:4 Mixtures | 1:6 Chemical Changes etc. |

Step three: Turn to the required reading pages and note each section heading. This gives the key to that section. Example: 1:1 Matter, etc.

Step four: As you read the section note the word or words either in black print or in italics. These are either new words or key words that the author wishes to emphasize. (Example: In section 1:3, "Compounds", the word "compound" is in black print with its definition and the words "Formulas" and "Subscripts" are italicized and definitions and examples given).

Step five: Use the glossary at the back of the book. If one is not included in the text use your dictionary (or write the word(s) down on a separate piece of paper for class discussion the next day. Never let an "unknown" word pass by. It may be the most important in the section. (Glossary in "Physical Science is found on pp. 490-499 with most "new" words defined.)

Step six: Most science books have pictures, diagrams, tables, charts, graphs, etc. Note these, especially in relation to the reading material. Study them carefully for often these are as important or more important than the reading. (Example: Table 1-2 gives "Some Common Compounds and Their Formulas" which supplements the information given in the text reading.)

Step seven: Turn the section heading into a question. (Example: Section 1:1 "Matter" - What is Matter? What are the characteristics of Matter?) The important point to remember here is to have something definite in mind that you are looking for, whether it is a point of information, an answer to a question or the solution to a problem. The poor student never seems to understand, partly because he/she is not looking for anything in particular.

Step eight: Recite to yourself while you are studying. After reading a paragraph or a section, cover the page(s) or close the book and ask yourself what you have learned. If you are not satisfied with your answer, read the section over again more carefully. (Example: Section 1:3 "Compounds". What is a formula? What are examples of formulas? What is the formula for water? rust? What does the formula tell me? etc.)

Step nine: When the reading assignment has been completed in this way (steps 1-8), the student should "become the teacher." Make up questions which you believe the teacher might ask either orally or as a written exam. Pretend that it is the following day and you are preparing a surprise quiz for the class.

Step ten: Study the sample problems carefully whenever they are given. Try to apply the sample problems to those which are to be answered. At the conclusion of a chapter, don't neglect either the chapter summary or the section titled "Main Ideas" (Example: pp. 114-115) These are marvelous for reviewing the entire chapter.

Step eleven: Read a section or so ahead. This will make the next assignment easier since it will be familiar territory when you are assigned to study it.

Remember, it is essential to over learn. You must not stop studying when the lesson can just be recalled. The best time to review your material is immediately after learning it. You forget more rapidly immediately after learning - as much as 40-50% during the first hour or two. An extra few minutes on material that has taken an hour to learn will reduce the percentage of loss greatly.

IX

# VOCABULARY

Each content area has its own special language. For students to read content material well, they must understand the vocabulary of the content and have well developed word recognition skills. When reading content material,students constantly encounter new words, as well as familiar vocabulary with new meanings. If the student does not grasp the technical vocabulary of the content area, he/she is not going to grasp the important concepts of that subject. For this reason, it is sound practice for the teacher to teach the vocabulary to the student when the concepts represented by the words are being taught and discussed. The words must be introduced to the students as they occur in the work of the course. Ideally, the words should be introduced in an organized manner, as research strongly suggests that planned instruction is superior to a casual or incidental approach.

The following section describes some guidelines and strategies for introducing and teaching vocabulary in the content areas.

## General Techniques for Teaching Vocabulary

1. Hold class discussions on words related to daily assignments.
2. Help students discuss meanings of words using content clues.
3. Acquaint students with roots, prefixes, and suffixes frequently used in particular content area subjects.
4. Acquaint students with the varied meaning of new words.
5. Encourage students to use the glossary and dictionary.
6. Have students develop a vocabulary section in their content area notebook. Word meanings can be written in the students' own words.

## Specific Techniques for Teaching Vocabulary

### Structured Overview

A structured overview is a framework of key vocabulary terms essential to the content area. The steps below describe the procedure for devising an overview.

1. Analyze the vocabulary of the learning task and list all words that you feel are representative of the major concepts that you want the students to understand.

2. Arrange the list of words until you have a schema which shows the interrelationships among the concepts particular to the learning task.

3. Add to the schema vocabulary concepts which you believe have a degree of meaning for the students in order to depict relationships between the learning task and the discipline as a whole.

4. Evaluate the overview. Have you clearly depicted major relationships? Can the overview be simplified and still effectively communicate the relationships you consider to be most important?

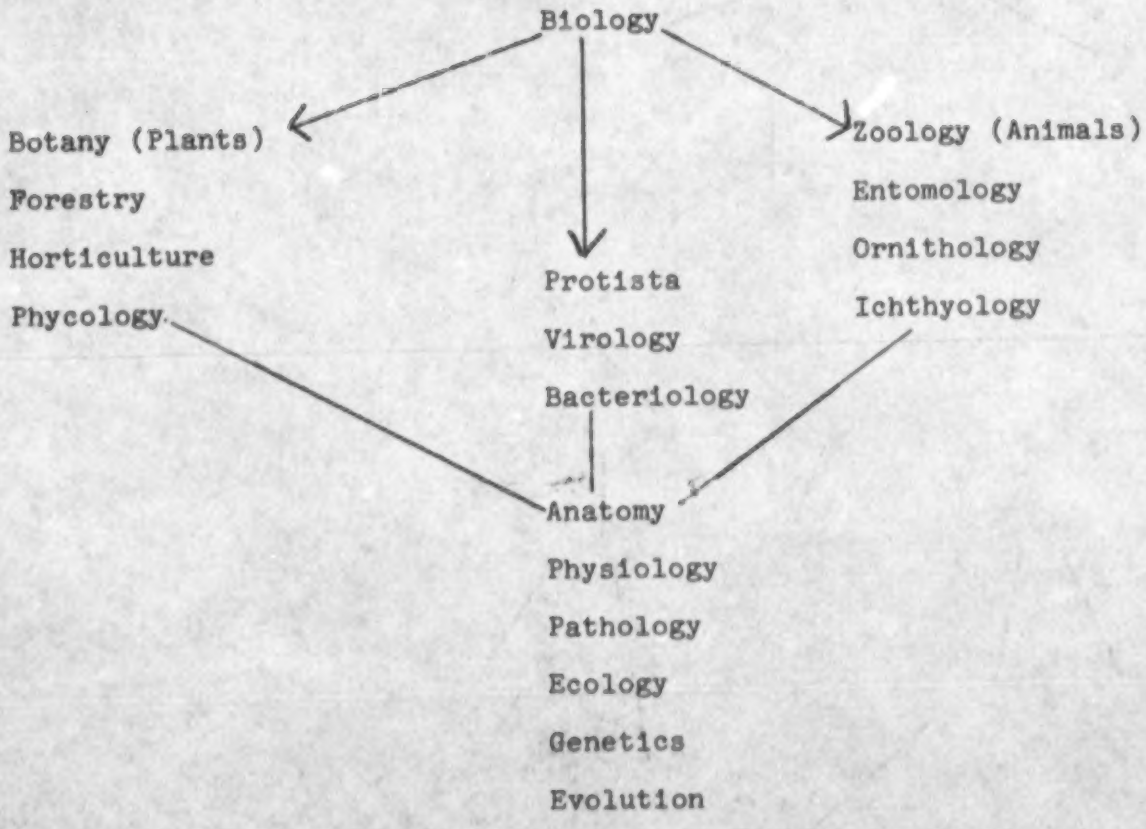
5. During the introduction of an overview, display the schema to the class and explain briefly why you arranged the terms as you did. Encourage the students to supply as much information as possible.

6. In learning tasks of extended duration (i.e., units of content) relate new information to the structured overview as it seems appropriate.

4:84

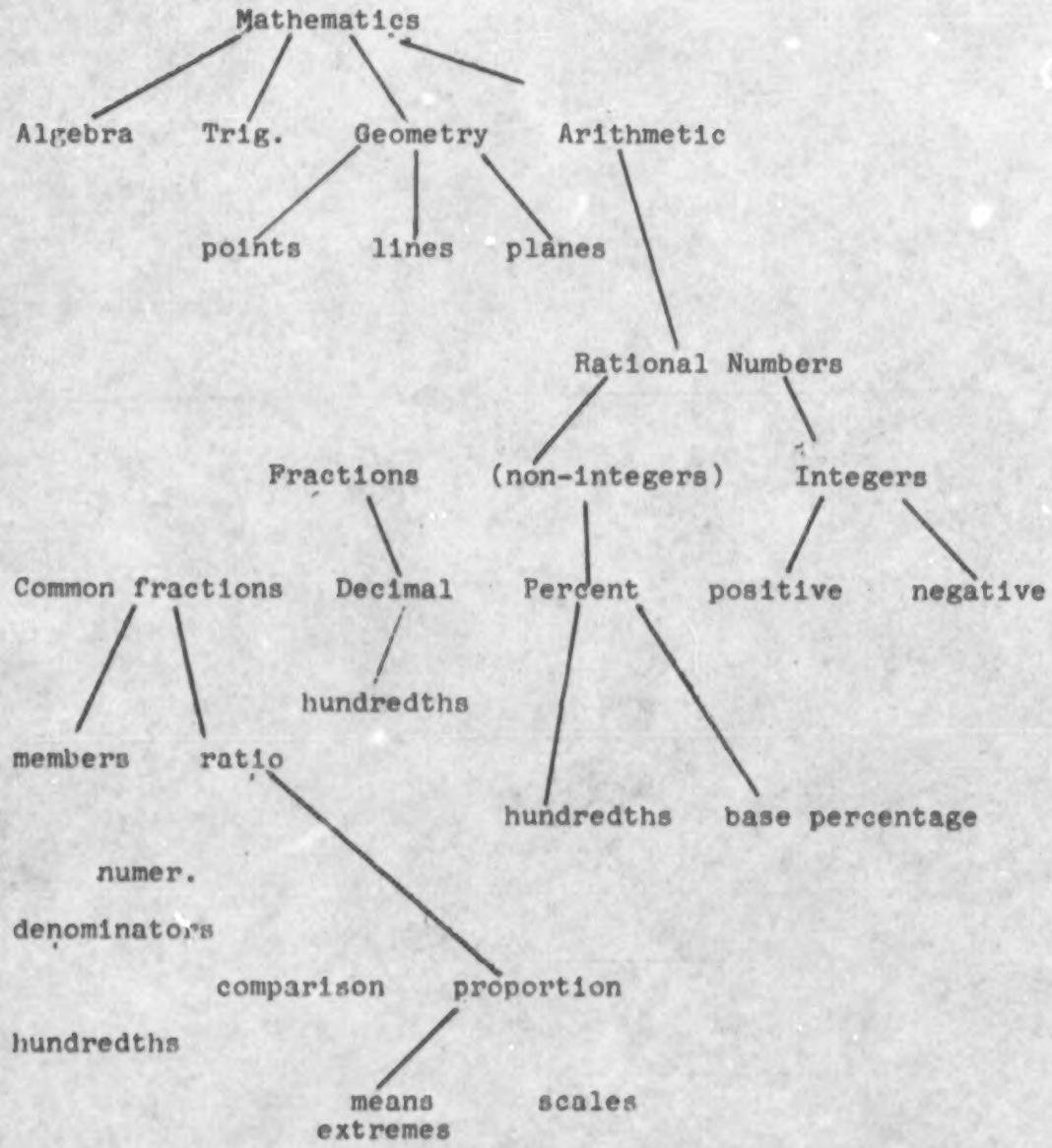
The following are three examples of the structured overview in biology, math, and English.

1. Biology




4:85

2. Math


Mathematics
Algebra
Trig.
Geometry
Arithmetic
points
lines
planes
Rational Numbers
Fractions
(non-integers)
Integers
Common fractions
Decimal
Percent
positive
negative
hundredths
members
ratio
hundredths
base percentage
numer.
denominators
comparison
proportion
hundredths
means
extremes
scales

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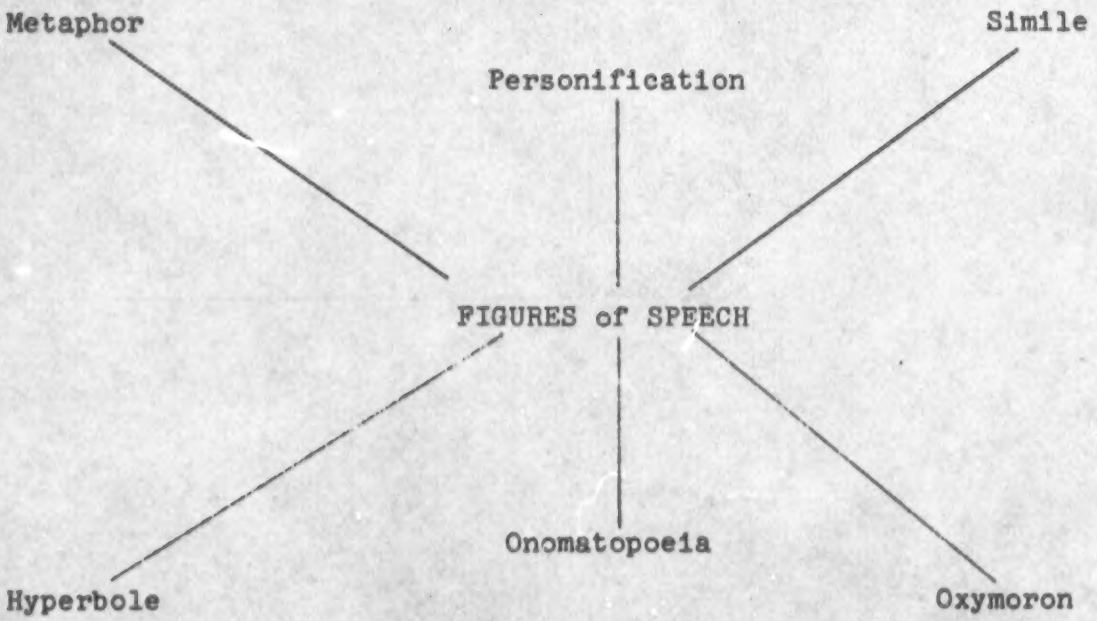
3. English


Metaphor
Simile
Personification
FIGURES of SPEECH
Onomatopoeia
Hyperbole
Oxymoron

Vocabulary extension activities for the student consist of individual completion of vocabulary exercises followed by class discussion. The following exercises involve matching, word puzzles, and categorizing in the content areas of social studies, science, math, and English. Also, included is a section listing prefixes and roots used in the content areas, their meaning, and examples.

MATCHING: SOCIAL STUDIES

Match the correct word in the left hand column to the definition on the right.

| | |
|---|---|
| 1. _____monsoon | A. A bank or ridge on a slope used for farming. |
| 2. _____ancestor | B. Pictures representing certain things such as words or symbols. |
| 3. _____dynasty | C. Winds coming across the ocean that bring heavy rainfall. |
| 4. _____barbarian | D. An incompletely civilized person. |
| 5. _____civilization | E. Sailboats used as Chinese homes but mainly for carrying goods and passengers on rivers. |
| 6. _____sampan | F. Religion of many Chinese people. |
| 7. _____junks | G. A scholar or deep thinker. |
| 8. _____terrace | H. A philosopher and teacher in ancient China who taught Chinese people to better themselves. |
| 9. _____jinrikisha | I. Long stone wall built to keep invaders out of China. |
| 10. _____Communism | J. Policy governing trade between China and other countries. |
| 11. _____Westerners | K. One from whom an individual or group of people are descended. |
| 12. _____custom | L. Cart pulled by a man used for transportation. |
| 13. _____pictographic | M. Habits of people usually handed down generation after generation. |
| 14. _____Buddhism | N. Way of living in which all land and other property are owned by the entire community or government. |
| 15. _____overpopulation | O. Too many people living in an area. |
| 16. _____Great Wall | P. Party against the communists living on the island of Formosa. |
| 17. _____commune | Q. Small farming villages where people work under the direction of the government. |
| 18. _____philosopher | R. Society formed to drive the Westerners out of China. |
| 19. _____Nationalist Party | S. A succession of rulers of the line of descent. |
| 20. _____Boxer Rebellion | T. People of a region to the west such as Europe and America. |
| 21. _____Confusius | U. River boats used as homes. |
| 22. _____Open Door Policy | V. A high level of cultural and technological development. |

WORD PUZZLE: SCIENCE (BIOLOGY)

Directions: Using the clues at the bottom of the page, complete the spelling of each word.

1. _ _ _ _ _ S _
2. _ _ _ _ _ O _ _ _ _
3. _ _ _ U _ _ _ _ _
4. _ R _ _ _ _ _ _ _
5. _ _ _ _ C _ _ _ _ _ _
6. _ _ _ _ _ _ _ _ E _ _ _ _ _ _ _ _ _ _ _
7. _ _ _ _ _ S _ _ _
8. _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ O _ _ _ _ _ _ _
9. F _ _ _
10. E _ _ _ _ _
11. _ _ N _ _ _ _ _ _
12. E _ _ _ _ _
13. _ R _ _ _ _ _
14. _ _ _ _ G _ _ _ _
15. _ _ Y _ _ _ _ _ _

1. Source of chemical energy in all animal cells.
2. Plant energy source.
3. Reaction involving gain of electrons.
4. Conversion of organic acid.
5. One place where reaction for liberation of energy takes place.
6. Key substance which occurs in every living organism and cell.
7. ADP.
8. Technical name for a series of reactions that liberate the chemical energy necessary to make ADP and ATP.
9. Source of energy.
10. Necessary for synthesis of proteins.
11. Term meaning the formation of a complex chemical compound by combining two or more simpler compounds.
12. Released when glucose is oxidized.
13. Living.
14. Non-living.
15. Oxidation in the absence of oxygen.

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WORD PUZZLE: SCIENCE

Directions: To solve the following puzzle look at the definitions below, think of a word which fits a definition and has the same number of letters as the number of spaces provided in the corresponding line. Write the word on the line, do this for each definition.

1. _ _ C _ _ _ _
   A
2. _ _ _ R _ _ _
   B
3. _ _ _ _ O _ _ _
   H
4. _ _ _ _ _ _ _ Y _ _ _
   D
5. _ R _ _ _ _ _
   A
   T
6. _ _ _ _ _ _ _ E

Definitions:

1. Substance commonly known as table sugar.
2. Component of all organic compounds.
3. Another name for "animal starch."
4. Term meaning "to break with water."
5. Compound containing carbon.
6. Within the body, this is a key compound in many vital activities.

4:37

WORD PUZZLE - SOCIAL STUDIES

AMERICAN REVOLUTION WORD SEARCH

C O M M I T T E E S O F C O M M I T T E E
U N A S N E T T T A B D O I A K Y C L N O
R T L N T L O J O N U L R S E I O R R S N
R O L O O O O I A N T W R W L S U O O K I
E P C W L V S V Y M A W E O L S M S A I N
N O O I E E I N R D E A S R I T O S D E D
C F V L R G L S O P F S P T A Y R T O S E
Y S U G A R A C T A A H O A U O E I R B P
A O E T B R O A A R L I N S T D L E S B E
C L I O L F W P R T S N D E G R I S T C N
T O R S E R O L A I E G E T Y A I O A C D
N D E T A O T E L N I N N H O N E C R P B
S S D M C M H A C G E O C A U D S N K D N
S M Y W T C C S E I A N E N A T T A H E C
T O W N S H E N D A C T A A N E H E S E E
A O I R T O O U G S R V C T D L N R I F A
M K T T I U U R R E R E F H I R A A N F B
P Y H R I T R E I F E R F I Y L N I T G C
A C T U N R S O F A S S I S T A N C E G I

**********

To solve this puzzle, scan the rows of letters for words related to the American Revolution and circle these words.

When you have found at least 16 related ideas match them with their appropriate meanings in the columns below.

EVENTS WHICH LED TO THE REVOLUTION

| BRITISH POLICY | COLONIAL OPPOSITION |
|---|---|
| _____ Act<br>All imports to and exports from the colonies required on English vessels | _____<br>Organized to unify efforts of patriots in the colonies |
| _____<br>Forbade issue of paper money in colonies | _____<br>Colonists dumped British tea into Boston Harbor |
| _____<br>Tax on printed matter | _____ 1774<br>Colonists organized to resist Intolerable Acts |
| _____<br>Tax on paper, glass, lead, tea | _____ 1775<br>Raised colonial army and appointed commander in chief |
| _____<br>Right to tax colonies at any time | _____<br>Appointed to draft Declaration of Independence |

| BRITISH POLICY | COLONIAL OPPOSITION |
| --- | --- |
| Punishment for the Boston Tea Party | Commander in Chief of Colonial Army |
| British officials could search private buildings or ships | Led protest in Virginia House of Burgesses |
| Tax on colonial imports from Spain and West Indies | Led Protest in Massachusetts Assembly |

CATEGORIZING: SCIENCE

Directions: Following the list of words below there are three categories. Place each word under the category to which it belongs. If you believe a word properly belongs under more than one category you may list it more than once.

| | | |
|---|---|---|
| amino acid | ribonucleic acid | DNA |
| Cell Chemistry | ionic compound | Sucrose |
| Biochemistry | dehydration synthesis | starch |
| cellulose | molecular compound | carbon |
| hydrolosis | organic compound | urea |
| glycerol | glucose | ATP |

| Carbohydrate | Fat or Oil | Nucleic Acid |
|---|---|---|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

1:38

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CATEGORIZING: MATHEMATICS

Directions: Following the list of words below there are three categories. Place each word under the category to which it most closely relates.

| | | |
|---|---|---|
| Real numbers | Counting numbers | Division |
| Addition | Symbols | Identity |
| Commutative | Subtraction | Inverse |
| Associative | Distributive | Closure |
| | Multiplication | |

1:93

CATEGORIZING: ENGLISH

Directions: Two sets of words appear below, with five words in each set. Circle two words in each set so that the remaining three will also have something in common other than not being selected. In the space provided, write the term which describes the relationship among or between words in each group.

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Is there more than one set of combinations for each main set of words? If so, write them down.

1. host guest visitor employer company

   GROUP ONE: _____

   GROUP TWO: _____

2. game quarry prey sport chase

   GROUP ONE: _____

   GROUP TWO: _____

*Note: In this interpretive-level exercise, one looks for multiple relationships among meanings of the words listed. The words are sufficiently abstract that each has several meanings within it so the interaction of multiple meanings among words requires critical, sometimes creative, reasoning.

9:27

## Prefixes and Roots

**Objective:** To help students learn prefixes and roots.

**Materials:** A list of the most important prefixes and roots in any given subject. (see following list)

Notebooks

**Procedure:**

1. Teacher prepares sheets for the student's notebooks. The following headings are used on each sheet:

| Root or prefix | Meaning | Example | Your examples |
|---|---|---|---|
| an | without | anaerobic | |

(space is left for students to add examples)

ab

ambi-

etc.

2. Teacher helps students start their lists. After that, teacher reminds students to keep adding words as they come up in class and checks periodically to see that they are doing so.

3. Teacher should conduct frequent review in content area class of prefixes and roots common to subject area and their meaning.

4. As vocabulary is introduced teacher should analyze root and prefix of words with the students.

9:27

## Word Parts

(Language Arts)

1. ab- (from, away)
2. ad-, ap-, a-, af- (to, toward)
3. ante- (before)
4. anthrop (man)
5. anti- (against)
6. aud (hear)
7. auto- (self)
8. be- (make, against)
9. bene- (well, good)
10. bio (life)
11. capit (head)
12. ced, cess (go)
13. chron (time)
14. cide (kill)
15. circum- (around)
16. con-, com-, co-, col-, cor- (with)
17. cor, cord (heart)
18. counter- (against)
19. cred (believe)
20. cur (run)
21. cycl (circle)
22. de- (down, away)
23. dem (people)
24. dia- (through, across)
25. dict (say)
26. dis- (opposite of, away)
27. duc, duct (lead)
28. en- (cause to be, put in or on)
29. epi- (upon, after)
30. eu- (good, well)
31. ex- (out of, former)
32. extra- (in addition)
33. fac, fec, fic, fy (make, do)
34. fer (bear, carry)
35. fid (faith, trust)
36. flect, flex (bend)
37. flu (flow)
38. fratr (brother)
39. gen (origin, birth)
40. grad (step)
46. in-, il-, ir-, im- (not)
47. in- (into)
48. inter- (between, among)
49. intra- (within)
50. jac, jec (throw)
51. jung, junct (join)
52. locu, loqu (speak)
53. -logy (study of)
54. luc (light)
55. magn (great)
56. man (hand)
57. matr (mother
58. medi, midi (middle)
59. metr (measure)
60. micro- (small)
61. mis- (bad, wrong)
62. mit, miss (send)
63. mono- (one)
64. mort (death)
65. multi (many)
66. nat (born)
67. neo- (new)
68. non- (not)
69. omni (all)
70. pan- (all)
71. path (feeling, suffering)
72. patr (father)
73. pels, puls (drive)
74. pens, pend (hang)
75. per- (through)
76. peri- (around)
77. phil (love)
78. phobia (fear)
79. phon (sound)
80. phot (light)
81. plic (fold)
82. polis (city)
83. poly- (many)
84. pon, pos (place, put)
85. port (carry)
86. post- (after)
87. pre- (before)
88. pro- (before, forward)

41. gram, graph (write)
42. hetero- (different)
43. homo- (same)
44. hyper- (above)
45. hypo- (under)

89. pseudo-(false)
90. re- (again, back)
91. reg (rule)
92. retro- (backward)
93. scrib, script (write)

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94. semi- (half)
95. sequ (follow)
96. sol (alone)
97. spect, spic (see)
98. spir (breathe)
99. sub-, suf-, sug-, sup (under)
100. super- (above)
101. syn-, sym- (with, together)
102. tain, ten (hold)
103. tele- (from a distance)
104. terra (earth)

105. theo (god)
106. tract (draw)
107. trans- (across)
108. ultra- (beyond)
109. un- (not)
110. uni- (one)
111. ven, vent (come)
112. vers, vert (turn)
113. viv vis (see)
114. viv (live)
115. voc, vok (call)

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## Word Parts

(Science)

1. a-, an- (lack of)
2. ab- (from, away)
3. acr (bitter, sour)
4. actin (ray)
5. ad-, ap-, a-, ab-, af- (to, toward)
6. aer (air)
7. alb (white)
8. alg (pain)
9. ante- (before)
10. anthrop (man)
11. anti- (against)
12. arc (bow)
14. arthr (joint)
15. atmo (vapor)
16. aud (hear)
17. auto- (self)
18. bar (weight)
19. batho (depth)
20. bi- (two)
21. bio (life)
22. cal (heat)
23. celer (quick)
24. cend (burn)
25. cent (hundred)
26. cept (take)
27. chromo (color)
28. cide (kill)
29. ciner (ashes)
30. circum- (around)
31. clud (close, shut)
32. con-, com-, co-, col-, cor- (with)
33. cor, cord (heart)
34. corpor (body)
35. cred (believe)
36. cumul (heap)
37. cycl (circle)
38. cyte (cell)
39. de- (from, down)
40. deca (ten)
49. endo- (within)
50. epi- (upon)
51. equ (equal)
52. erg (work)
53. esth (feeling)
54. ex- (out of, former, thoroughly)
55. exo- (outside)
56. extra- (in addition)
57. fac, fec, fic (make)
58. fer (carry)
59. fig (form)
60. fin (end, limit)
61. fiss (split)
62. flagr (flame, burn)
63. flam (flame)
64. flate (blow)
65. flect, flex (bend)
66. form (shape)
67. fract (break)
68. frict (rub)
69. fum (smoke)
70. gam (marriage)
71. gel (cold)
72. -genous (producing)
73. geo (earth)
74. glomer (ball)
75. gnos (knowledge)
76. grad (step)
77. graph, gram (write)
78. hecto- (hundred)
79. hem (blood)
80. hepta- (seven)
81. hes, her (stick)
82. hetero- (other, different)
83. hexa- (six)
84. holo (wholly)
85. homo- (same, similar)
86. hydr (water)
87. hygro (wet)
88. hyper- (overly)

41. dem (people)
42. demi- (half)
43. derm (skin)
44. dis-, di- (two, apart)
45. duc, duct (lead)
46. dur (hard)
47. dynam (power)
48. en- (cause to be, put in or on)

89. hypo- (under, less than)
90. ign (fire)
91. in- (into)
92. in-, il-, ir-, im- (not)
93. infra- (beneath)
94. inter- (between)
95. intra- (within)
96. iso- (equal)
97. -itis (inflammation)

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98. ject (throw)
99. junct (join)
100. kilo- (thousand)
101. later (side)
102. lav (wash)
103. lipo (fat)
104. liqu (fluid)
105. lith (stone)
106. -logy (study of)
107. lubri (slippery)

109. luc (light)
110. lum (light)
111. -lysis (dissolution, rot)
112. mal (bad)
113. marin (sea)
114. mega (large)
115. merg (dip)
116. meta- (beyond, over)
117. meter, metr (measure)

118. micro- (small)
119. midi (middle)
120. mill (thousand)
121. mini (small)
122. mis- (bad, wrong)
123. misce (mix)
124. miss, mit (send)
125. mono- (one)
126. morph (form
127. multi- (many)

128. nebul (cloud)
129. neo (new)
130. noc, nox (night)
131. non- (not)
132. noxi (harm)
133. nom (law)
134. octa- (eight)
135. ocul (eye)
136. ole (oil)
137. omni (all)

150. peri- (around)
151. petr (rock)
152. phil (love)
153. phon (sound)
154. photo (light)
155. phyt (plant)
156. plic (fold)
157. pod (foot)
158. poly- (many)
159. pon, pos (place)

160. port (carry)
161. post- (after)
162. pre- (before)
163. primus (first)
164. pro- (before, forward, in favor of)
165. pseudo- (false)
166. psych (mind, soul)
167. purg (cleanse)
168. pyr (fire)

169. quadr (four)
170. quint- (five)
171. rad (scrape)
172. re- (again, back)
173. rota (wheel)
174. rupt (break)
175. scalar (ladder)
176. sci (know)
177. scop (view, examine)
178. sect, seg (cut)

179. semi- (half)
180. sesqui- (one and one half)
181. sex- (six)
182. solv (loosen)
183. soma (body)
184. sorb (suck)
185. spect (look, see)
186. stan, stat (stand)
187. strat (spread)
188. sub-, suf-, aug-, sup- (under)

138. op (eye, sight)
139. orb (circle, sphere)
140. ortho- (straight, correct)
141. -osis (condition)
142. osm (smell)
143. osteo (bone)
144. par (equal)
145. path (feeling, disease)
146. pel (push, drive)
147. ped (foot)
148. penta- (five)
149. per- (through)

189. sume (take)
190. super- (over)
191. supra- (above)
192. syn- (with, together)
193. tain, ten (hold)
194. tax (arrangement)
195. tele-(from a distance)
196. tempor (time)
197. tend (stretch)
198. terra (earth)
199. tetra- (four)
200. therm (heat)

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201. top (place)
202. tract (draw)
203. trans- (across)
204. tri- (three)
205. ultra- (beyond)
206. un- (not)
207. uni- (one)
208. vacu (empty)
209. verd (green)
210. vis, vid (see)
211. volv (roll)
212. xeno (stranger)

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## Word Parts

(Mathematics)

1. ante- (before)
2. anti- (against)
3. bi- (two)
4. cent (hundred)
5. circum- (around)
6. co-, con-, com- (with, together)
7. cycl (circle)
8. dec, deci (ten)
9. di - (across, through)
10. duc, duct (lead)
11. equ (equal, level)
12. fac, fec, fic, fy (do, make)
13. fin (end)
14. flect, flex (bend)
15. form (shape)
16. fract (break)
17. geo (earth)
18. gon (angle)
19. gram, graph (write)
20. hemi- (half)
21. nex (six)
22. idio (one's own, individual)
23. inter- (among)
24. iso (equal)
25. junct (join)
26. kilo (thousand)
27. later (side)
28. log (speech, word)
29. -logy (study of)
30. medi (middle)
31. metr (measure)
32. mill (thousand)
33. min (less)
34. mono- (one)
35. multi (many)
36. non- (not)
37. numero (number)
38. oct (eight)
39. ortho (straight)
40. para- (beside)
41. pens, pend (hang)
42. penta- (five)
43. plan (flat)
44. poly- (many)
45. pon (place)
46. post- (after)
47. quadr (four)
48. quart (fourth)
49. quint (fifth)
50. radius (ray)
51. scrib, script (write)
52. sect, seg (cut)
53. semi (half)
54. sequ (follow)
55. sex (six)
56. simil (like)
57. solv (loosen)
58. struct (build)
59. sub- (under, below)
60. summa (highest)
61. super- (over)
62. sym-, syn- (together)
63. tang, tact (touch)
64. tract (draw)
65. trans- (across)
66. tri- (three)
67. uni- (one)
68. verg (bend, incline)
69. vert, vers (turn)

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## Word Parts

(Social Studies)

1. aqua (water)
2. ambul (walk)
3. anthrop (man)
4. arch (rule)
5. astr (star)
6. bell (war)
7. cap (head)
8. ced, cess (go)
9. chron (time)
10. circu (around)

11. com-, con-, co-, col-, cor- (with, together)
12. corpor (body)
13. crat (rule)
14. cred (believe)
15. crim (crime)
16. cycl (circle)
17. dem (people)
18. dic (say, speak)
19. doct (teach)
20. dom (house)

21. duc (lead)
22. enn (year)
23. equ (equal)
24. ex- (out)
25. fac, fec, fic, fy (make, do)
26. fer (bear, carry)
27. flamma (flame)
28. flu (flow)
29. form (shape)
30. fort (strong)

31. fratr (brother)
32. fug (flee)
33. geo (earth)
34. graph, gram (write)
35. hydr (water)
36. in-, im, il-, ir- (not)
37. jur (law)
38. leg (law)
39. liber (free)
40. lith (stone)
41. log (write, speak)
42. macro (large)
43. man (hand)
44. mand (order)
45. marin (sea)
46. matr (mother)
47. maxi, macro (great)
48. meter (measure)
49. micro (small)

50. migr (move)
51. mini (less)
52. miss, mit (send)
53. mono (one)
54. mort (death)
55. multi (many)
56. null (no)
57. omni (all)
58. pac (peace)
59. pan (all)
60. patr (father)

61. pet (seek)
62. phobia (fear)
63. phon (sound)
64. polis (city)
65. pon (place)
66. port (carry)
67. reg (rule)
68. sec, seg (cut)
69. soci (ally, companion)
70. sol (alone)
71. ten (hold)

72. terr (earth)
73. uni (one)
74. vict (conquer)
75. vis (see)
76. vok, voc (call)
77. volv (roll, turn)

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X

## Test Taking Techniques

Study skills include those needed for very specific purposes such as taking tests. The student's ability to express what he/she knows is a major determiner of his/her grade in class. Unfortunately, many students are not sophisticated test takers. They do not know the many strategies they can use in taking tests. Thus they often do not do well on tests, not because they don't know the material but because they don't know how to take tests efficiently.

Making students aware of test taking techniques such as those that follow may increase their confidence and lead to success.

## General Suggestions for Being Successful on Exams

I. Skill in taking an exam begins well before the day you sit down in the classroom and are handed the exam. Here are some suggestions for pre-exam studies to enable you to prepare for the exam.

A. Keep up with your daily work.

1. Mastering each lesson as it is assigned is the best kind of preparation for a test.

B. Review your work regularly.

1. Each day try to review what has been assigned previously: skim through back text pages; reread class and text notes; review corrected homework and laboratory assignments and vocabulary.

2. Ask yourself questions you think the teacher is likely to ask. Those which can't be answered easily should be looked up and the material studied.

C. Get help.

1. If you are having trouble in understanding some part of the material don't hesitate to ask for help. Whether this help comes from a friend, a parent, or the teacher doesn't matter. The important points are: (a) that you seek help and don't ignore the problem; (b) that it be done while the problem is still current.

D. Concentrate on what you do not know.

1. In preparing for a test spend the greater part of your time on those sections you do not understand or that you have most difficulty remembering.

E. Draw up and stick to a test-study schedule.

1. Start to prepare for a unit test, a mid-term test, or a final test in advance.

2. Make up a study schedule for intensive review. On your schedule indicate what subject(s) is (are) to be studied; at what time(s) it is (they are) to be studied and for how long it is (they are) to be studied. Allow the most time for your weakest subjects.

3. Alter your schedule to fit your needs if necessary.

F. Keep yourself in good physical health.

1. If you feel well and fresh, you are more likely to do your best than if you are ill or tired.

2. Go into training for a test. Be sure you get enough sleep every night especially just before the exam.

G. Strive for good mental health.

1. If you study efficiently every day and if you get ready for a test well in advance, you will have a calm, relaxed, and confident attitude. If you not only know but also know that you know what the test is to cover, you are likely to do better in it.

H. Review briefly just before examination.

1. An hour of review the night before should be all that is necessary if you have followed the previous steps. Cramming does not work. Cramming is one of the poorest ways to get ready for a test. It tends to wear you out both physically and emotionally. You need the relaxation and sleep more at this time. An "up tight" person will tend to forget more easily than a relaxed person.

2. Review mainly those problem areas most likely to be forgotten.

3. Relax; get to bed early.

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II. General suggestions for taking any type of test.

A. Be sure you have pencil, pen, eraser, paper, and any other materials that you will need for the test.

B. When you enter the examination room, keep cool and assume a resigned attitude. Close your book and relax. It is too late to worry now; just do your best. Set up a positive attitude.

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C. First read or listen to all of the directions carefully. Then follow these directions. Don't assume you know what you are to do. Look or listen for key words such as "describe, explain, list, or compare.

D. Answer each item as instructed "and" as briefly as you can without omitting necessary facts. Put in only the essential details. Do not include unrelated facts just because you remember them. If you come across a difficult test item, skip it temporarily. Go back to it later. You may find that another question later in the test will give the answer or a clue to the difficult one.

E. Read all of the questions over before you start writing. This will start your mental processes working on the question.

F. Budget your time among the questions carefully. The more difficult the question "or the more points it counts for--the more time you should allow for it."

G. Write your answer in legible form. Obviously if your teacher cannot read your hand-written answer he cannot give you credit for it.

H. Use correct "English" - complete sentences, punctuation, spelling, etc.

I. If time allows reread your test paper carefully. Make sure you have followed all directions. Make sure you have answered all of the questions. If an answer can be improved or corrected take the time to do so. However, "remember that your first impression is usually the correct impression. Therefore, think twice before you completely change your answer to a test item." Don't try to be the first one to pass in the exam.

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## Techniques of Taking Objective Tests

1. Answer questions you know first.
2. Read through all the choices given before selecting an answer.
3. When unsure of an answer,
   a. try to eliminate obviously incorrect answers;
   b. look for clues in other answers that can help in answering the question;
   c. remember that all parts of a true/false statement must be true for it to be correct;
   d. guess when you don't know the answer unless there is a penalty for guessing;
   e. trust your first guess when unsure of an answer.
4. Proofread to be sure that you have left no question unanswered.

## Techniques of Taking Essay Tests

1. Read the directions and all questions before writing answers.
2. Be familiar with what the directions require. Know the meaning of key words such as explain, describe, compare, contrast, etc.
3. Plan to give a certain amount of time to each question based on how much that question is worth.
4. Start working on the question you can do best.
5. Think about what you want to write before writing.
6. Write a brief outline of your answer. Then write your answer.
7. Be sure to give both general ideas and details in your essay.
8. Concentrate on one question at a time. Don't try to think ahead while working on a question.
9. Answer in outline form if you lack time to write out your answer as an essay. You may get partial credit.
10. Check your essay answers for spelling, punctuation, neatness, and organization. Reread your answers to be sure they say exactly what you mean.

## Techniques of Taking Standardized Reading Tests

1. Read the questions before reading the passage.
2. Substitute vocabulary answers for the word in context.
3. Remember that questions that ask you to select the best title for the passage generally are asking for the main idea.
4. Always check the passage when questions ask for a detail noted in the passage.
5. When selecting the main idea of a passage, eliminate answers that are too broad or too narrow.

## Specific Test Taking Techniques

There are specific procedures for taking a math, science, or social studies test which might vary from the general directions of test taking. To aid the student these techniques are listed below.

### Math

1. Read all the problems to get an overview of the test.
2. Take an individual problem and concentrate on the question or direction that indicates what you are to do.
3. Reread the problem and decide which procedure to follow for a solution.
4. Have an estimated answer in mind.
5. Check your answer against your estimate and prove your work, if possible.

### Science

1. Read the description of each process a step at a time, and be sure you understand each step.
2. Repeat all steps in your mind.
3. If a diagram is present, refer to it as you read the question.
4. In explanations include what you recall of prior material.

### Social Studies

Read questions carefully and determine the type of organization which is common in social studies, such as:

1. cause and effect,
2. comparison and contrast,
3. chronological order,
4. logical expansion and explanation of the main idea.

C5

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